

The Differential Effects of Prison Contact on
Parent-Child Relationship Quality and Child Behavioral Changes

by

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ABSTRACT

While incarceration can be detrimental for inmates, the children of prisoners can suffer from behavioral issues, poor school performance, and a higher risk of crime and delinquency across the life-course. Separation from one's family is part of what makes incarceration a punishment, but what can be done to ensure that this punishment has the least harmful effect on children? Prison visitation presents an intriguing opportunity to lessen the potential harms of parental incarceration. Using data from the Arizona Prison Visitation Project (APVP), the current study focuses on inmates who were parents to minor children and seeks to determine: 1) do different types and different amounts of prison contact (in-person, phone, and mail) correlate with changes in the quality of parent-child relationships and 2) does a change in parent-child relationship quality correlate with a change in child behavior. The results from the analysis suggest that visitation and mail contact are associated with positive increases in parent-child relationship quality. Also, positive changes in parent-child relationship quality were associated with a decrease in the odds of children having behavioral problems during incarceration. This study provides some support for the ability that prison contact can have to increase relationship quality, which in turn, may decrease the presence of behavioral issues in the children of incarcerated parents. Future directions in policy should consider measures to subsidize or refund contact costs, encourage contact between parents and their children, and involve children in in-prison programming designed to improve contact and relationships between parents and their children.

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The Differential Effects of Prison Contact on Parent-Child Relationship Quality and Child Behavioral Changes

Each night, 2.7 million children in the United States are unable to kiss their mom or dad goodnight because that parent is behind bars (The Pew Charitable Trusts, 2010). Although the parent may have committed a crime and must face the consequences of doing so, the children of prisoners face a punishment all their own. Termed the “orphans of justice” (Shaw, 1992) and the “hidden victims of imprisonment” (Cunningham & Baker, 2003), the children of incarcerated parents are subject to consequences that are often unconsidered in policy. Researchers have found that children of incarcerated parents are more likely to suffer from behavioral issues, poor school performance, and a higher risk for crime and delinquency across the life-course (Murray & Farrington, 2005; Murray, Farrington, & Sekol, 2012; Myers, Smarsh, Amlund-Hagen, & Kennon, 1999). Separation from family is part of what makes incarceration a punishment for the convicted (Cochran & Mears, 2013), but what can be done to ensure that this punishment has the least harmful effect on their children?

Prison visitation presents an intriguing opportunity to lessen the potential harms of parental incarceration. Visitation provides an important context for parents behind bars to continue to interact and bond with their families (Beckmeyer & Arditti, 2014; Cochran & Mears, 2013; La Vigne, Naser, Brooks, & Castro, 2005). Visitation with children can decrease in-prison misconduct and infractions, improve the social bonds that facilitate successful reentry, and reduce recidivism post-release (Bales & Mears, 2008; Cochran, 2012; Jiang & Winfree, 2006; Visher, 2011). Less is known, however, about the effects that prison visitation may have on children specifically and the parent-child relationship

in general. This is an important omission given that some researchers indicate that parental incarceration may not have a consistently negative effect on children (Turanovic, Rodriguez, & Pratt, 2012). However, prison visitation remains a largely untapped resource in research on the collateral consequences of incarceration.

The current study examines data from the Arizona Prison Visitation Project (APVP) to begin to understand the impact visitation and contact has on parent-child relationships and the collateral consequences of parental incarceration on children. The APVP contains information from semi-structured interviews of 231 male and female inmates who had been visited in the previous month. The current study focuses on inmates who were parents to minor children (n=128) and seeks to determine: 1) do different types and different amounts of prison contact (in-person, phone, and mail) correlate with changes in the quality of parent-child relationships and 2) does a change in parent-child relationship quality correlate with a change in child behavior. More broadly, the current study provides an examination of whether prison contact, and particularly visitation, can serve to mitigate the potentially harmful effects of separating parents and children through incarceration.

LITERATURE REVIEW

Contact in Prison

Types of Contact. Prison contact comes in three forms: (1) mail, (2) phone calls, and (3) in-person visitation. In terms of monetary cost, mail is the most affordable form of contact at \$0.49 per letter; the cost of a stamp. Prison phone call rates, once excessive, have now largely been capped to between \$0.21 and \$0.25 cents a minute (Downs, 2013;

Federal Communications Commission, 2016; Iddings, 2006). In-person visitation can be costly and time-consuming, depending on the distance between the visitor's place of residence and the prison and items brought to the prison. In her study on the experiences of families visiting inmates in two upstate New York prisons, Christian (2005) reported that in-person visitation costs a minimum of \$80 per visit and can easily reach over \$150.

In light of the monetary costs, each type of contact provides a different context for prisoners and their families to communicate. Previous research has found mail to be the most common form of contact in prison, with mail contact occurring multiple times a week, phone contact at least once a week, and visitation at least four times a year (Tuerk & Loper, 2006). This is likely due to the low cost of mail compared to other forms of contact. By utilizing mail, an inmate and their respondent can reflect on and edit their thoughts at their own pace and respond at times that are more conducive to their daily schedule (Tuerk & Loper, 2006). However, sending mail is not always age appropriate, as younger children cannot read or write and therefore another parent or family member must fully facilitate the communication (Kampfner, 1995). Conversely, phone calls allow the inmate and their family to communicate without the time delay associated with letter writing. Phone calls are especially important for inmates whose families live great distances from the prison, those whose families are financially unable to visit, and those who are illiterate (Iddings, 2006).

While the other forms of contact provide important contexts for communication between prisoners and their families, prison visitation allows for communication that more closely resembles prior family interactions. Prison visitation provides inmates with proximal contact with their friends and families and facilitates continued social ties to

those on the outside (Beckmeyer & Arditti, 2014). Prison visitation serves three purposes other than contact between inmates and the outside world (Christian, 2006). First, it provides families of inmates an avenue for “watching the system” and making sure that staff are treating the inmate well (p.41). Second, visitation can allow an inmate’s family to advocate for better medical or psychological treatment. Third, whether through the view of serving the sentence together or plain devotion to an inmate, the moral support provided by families through visitation helps to lessen some of the psychological damage incurred as a result of the prison experience. Visitation, as a context of interaction between individuals, can prove to be beneficial for families and inmates, outside of simply being a way to communicate.

The benefits of visitation stand in light of the fact that visitation rooms do not facilitate normal family interactions. More specifically, visitation rooms can be chaotic, lack privacy, and are controlling and restrictive in nature (Arditti, 2003; Hairston, 2008). Visitation policies can restrict physical contact between families, set time limits, and are not sensitive to the behavior of children (Arditti, 2012). Visitation staff can be unhelpful and rude (Arditti, 2003). Visits can also be exhausting and time-consuming, especially for those who must travel great lengths to visit inmates (Christian, 2005). Despite these challenges, the need for visitation can be summed up with the observation by a family member that the family “must make tradeoffs to stay connected to a prisoner” (Christian, 2005, p.40).

The Nature of Parent-Child Relationships in Prison. In terms of relationships between parents and children, incarceration greatly changes the dynamics of the parent-child relationship. “Parenting from a distance” and parenting at home are two

dynamically different styles of parenting (Boudin & Greco, 1993). The major challenges associated with parenting from a distance, as reported by parents, ranged from the inability to be there for their children on a daily basis, a lack of knowledge of what was going on in the children's lives, and time constraints placed on contact with children (Bailey, 2003). Bailey (2003) also states that parenting from a distance limits the parent's ability to regulate child behavior and influence child rearing practices. These challenges follow the same lines for parents in prison, as highlighted by Arditti et al. (2005) in their qualitative study of fatherhood behind bars. Considering the content of communication in prison, in her qualitative study about fathering from prison, Hairston (2002) found contact with children typically consisted of educational encouragement, reminding children to mind their caregiver, and reminding children that they are loved. Although most of the literature concerning parenting from a distance has been examined in terms of parental divorce, the conclusions of the research have implications for parenting from prison. Further, it is possible that the effects seen from divorce may be exacerbated in incarceration, since the separation is more extreme and the reasons for separation are more jarring, in general. Overall, it is apparent that incarceration can have an impact on the ability for parents to effectively fulfill their parental roles.

 Contact and Parent-Child Relationships. While researchers have shown that parent-child relationships are undoubtedly changed when a parent is incarcerated, researchers are more mixed on the ability that prison contact has to change or improve parent-child relationships. Some researchers suggest that visitation has an empirically robust ability to improve relationships between parents and their children, although only a handful examined visitation alongside other types of contact (see La Vigne et al., 2005;

Poehlmann, 2005b). Arditti and Keith (1993) found that divorced fathers who visited their children more frequently reported better relationship quality. Further, the benefits of prison visitation on parent-child relationships were greater than phone or mail contact (La Vigne et al., 2005). In-person visitation also had the greatest impact on post-prison relationships with other family members (La Vigne et al., 2005).

Conversely, some researchers suggest that mail or phone contact have a greater impact on relationship quality than visitation. In her study on incarcerated mothers' relationships with their children, Poehlmann (2005b) found that the frequency of telephone calls, not visits, had the largest impact on improving mother-child relationships, as perceived by the mother. Using the Inventory of Family Feelings (IFF), a 38-item measure that reveals markers of conflicted relationships and closeness/warmth in family dyads, she found that visits did impact maternal depressive symptoms, but links to child outcomes were not examined. Also, Poehlmann and colleagues (2010) found that visits in prison may impede the ability for parents and children to improve their relationship due to negative feelings, on the part of the child, in response to the institutional setting.

Alternatively, the literature tends to support the finding that frequent contact, in general, is beneficial for parent-child relationships, both for those parents who are divorced and those who are incarcerated. In a meta-analysis of 12 studies on parental factors and the adjustment of children post-divorce, Whiteside and Becker (2000) found that the frequency of contact had the greatest impact in improving parent-child relationships. Further, in her study about the children of incarcerated parents aged 2 to 7, Poehlmann (2005a) found that sustained, frequent contact was associated with more

positive mother-child attachment relationships. Lastly, in a study on the effectiveness of a program which increased communication frequency between incarcerated mothers and their children, Snyder, Carlo, & Coats Mullins (2002) found that almost all the mothers in the program reported that their relationships with their children had improved through increased contact. Overall, these studies tend to support the ability that contact has to improve parent-child relationships among families who are separated for significant periods of time.

Incarceration, Parent-Child Relationships, and Child Behavior

Ambiguous Loss, Disenfranchised Grief, & Attachment Theory. There are reasons to believe that parental incarceration and changes in the parent-child relationship may influence child behavior. First, parental incarceration has been noted by previous researchers to be a form of ambiguous loss (Arditti, 2003). Ambiguous loss differs from normal loss in the sense that it is out of an individual's control and as the name implies, it involves a sense of ambiguity in the status of the person (Boss, 1999). Boss (1999) highlights that the cause of the loss, whether it be sudden and catastrophic or more common and predictable, may alter an individual's response to an ambiguous loss. For some families, then, an individual's incarceration may be common and predictable. But for others, an individual's incarceration is sudden and catastrophic. Children suffering from the ambiguous loss of a parent through incarceration have been found to have higher rates of behavioral issues, including internalizing behaviors, externalizing behaviors, and PTSD (Bocknek, Sanderson, & Britner IV, 2009).

Second, the child-level outcomes associated with ambiguous loss are amplified by the cultural notion that incarceration is not an event which can be mourned within

society. This blockage of normal grieving processes by society leads to disenfranchised grief. Incarceration is highly stigmatized, in that the inmate is to blame for their incarceration and those who are related to the inmate may feel a sense of social shame (Arditti, 2003). Disenfranchised grief can lead to psychological, behavioral, and emotional problems due to the individual's inability to grieve properly because the demonstration of grief is stigmatized (Arditti, 2005). These problems can include depression, anxiety, and anger, trouble concentrating, and a tendency to avoid social contact (Edelstein, Burge, & Waterman, 2001; Exline et al., 1996).

Third, incarceration of a parent has an impact on the development of a child's style of attachment, particularly when a child is very young at the time of incarceration. Beginning in infancy, children develop attachment styles from relationships and bonds with their caregivers, particularly from their mother (Ainsworth, 1979; Bowlby, 1973). These attachment styles can take one of four forms: secure, anxious-avoidant, anxious-resistant, or disorganized (Ainsworth, 1979; Bowlby, 1973; Main & Solomon, 1986). A secure attachment style results from responsiveness, availability, and sensitivity from the parent. An anxious-avoidant attachment style results from a child's uncertainty if their caregiver will be responsive, available, or sensitive to their needs. An anxious-resistant attachment style results from a child's knowledge that the parent will not be available, responsive, or sensitive to their needs (Bowlby, 1988). Lastly, attachment styles that do not fit into the above three categories are labeled as disorganized (Main & Solomon, 1986).

Attachment styles are important for children as they provide a life-long mental representation for interpreting behavior. In turn, these attachment styles provide the base

for the developmental pathways leading to both social and emotional competence (Bowlby, 1982; 1988). Further, attachment styles provide the base with which we can understand childhood resilience in the face of adversity (Poehlmann, 2005a). Unfortunately, research suggests that once a child reaches adolescence or adulthood, changing the characteristics of one's attachment style is very difficult (Bowlby, 1980).

Attachment styles have been connected to behavioral, emotional, and educational outcomes, both in the short- and long-term (Ainsworth, 1985; Bowlby, 1973). Anxious attachment styles have been associated with negative outcomes such as delinquency, externalizing and internalizing behavior problems, lower school performance, and relationship issues in adolescence and adulthood (Greenberg, 1999; Hoeve et al., 2012; Jacobsen & Hofmann, 1997; Simpson et al., 2007). On the other hand, a secure attachment style has been associated with more positive outcomes, including self-reliance, emotional regulation, and social competence (Sroufe, 2005). These findings support the expectations presented by Bowlby and Ainsworth in their work on attachment (Ainsworth, 1985; Bowlby, 1973).

Researchers have demonstrated that more profound consequences result from attachment styles where a child and a parent are separated early in the child's life (particularly infancy) and for long periods of time (Poehlmann, 2005a). Separation, particularly in the form of incarceration, impacts attachment development and sustenance (Bowlby, 1973; Poehlmann, 2005a). In support of this, researchers have found that children of incarcerated mothers have a higher likelihood of reporting anxious or disorganized attachments to their parents (Poehlmann, 2005a). As discussed above, anxious attachment styles are related to a host of negative outcomes, including behavioral

issues and delinquency. Overall, while ambiguous loss and disenfranchised grief are important frameworks for understanding why incarceration impacts child behavior, disruptions in the development of a child's attachment style connects incarceration to changes in parent-child relationships that can impact child behavior.

Outcomes Associated with Parental Incarceration. Researchers have shown that the children of incarcerated parents are more likely to exhibit antisocial behavior, problems with internalizing outcomes, issues with aggression and violence, mental health issues, problems in school, and a higher rate of criminality in adolescence and adulthood (Burgess-Proctor, Huebener, & Durso, 2016; Farrington, 2000; Murray & Farrington, 2005; Murray & Farrington, 2008a; Myers, Smarsh, Amlund-Hagen, & Kennon, 1999). While the outcomes associated with parental incarceration are numerous, many of them are long-term or time-lagged well into or after the parent's incarceration. Further, many of the researchers studying the consequences associated with parental incarceration have a hard time determining whether child behavioral problems are the direct result of a parent's incarceration or a result of the problems which contributed to the parent's incarceration (e.g.; antisocial behavior, drug use, mental health). It is important, then, for researchers to control for pre-prison child behavioral problems before associating child behavioral issues directly with parental incarceration.

Child Behavioral Changes as a Response to Parental Incarceration. Of greatest importance for the current analysis is the presence of behavioral changes associated with parental incarceration. The divorce literature provides insights into the behavioral changes associated with the removal of a parent from a family or household. The period immediately following a separation is particularly stressful and children can have strong

emotional responses including anger, anxiety, and shock (Hetherington, 1979; Hetherington, Cox, & Cox, 1982). Researchers have found a higher rate of behavioral problems in children of divorce up to two-years after the initial separation (Hetherington, Cox, & Cox, 1982). The divorce literature provides a context in which we can begin to understand child behavioral changes as a reaction to a parent's incarceration. It is likely, though, that the child behavioral responses associated with incarceration will be more severe than with divorce, since incarceration of a parent is a more serious form of separation and can involve a higher level of trauma for children.

Few studies have examined child behavioral issues in direct response to a parent's incarceration. Shlafer & Poehlmann (2010) reported that the percentage of children with borderline or clinically significant internalizing and externalizing problems increased over the course of a parent's incarceration in their sample of children participating in a mentoring program. At the beginning of the study, 33% of the children in their sample aged 4-15 had borderline or clinically significant externalizing problems and 19% had borderline or clinically significant internalizing problems. At the six-month follow-up, internalizing problems increased to 44%, while externalizing behaviors remained stable at 33%. It appears that researchers who examine child outcomes post-release are likely missing important behavioral changes that take place during a parent's incarceration that can be directly linked to the separation of parents and children through incarceration.

Child Behavioral Changes in Response to a Change in the Parent-Child Relationship. While parental incarceration can lead to changes in child behavior, research also demonstrates that changes in the parent-child relationship can lead to changes in child behavior. Much of what we know about this relationship, again, comes from the

literature on divorce. In a meta-analysis of 24 studies related to the risk and protective factors in children's adjustment to divorce, Leon (2003) reported that parent-child relationship quality plays an important role in a child's adjustment to divorce. Further, children who had a poor relationship with one or more parents had worse behavioral outcomes than children with intact households (Peterson & Zill, 1986). In a study on child responses to parental incarceration, Murray (2005) notes the parent-child relationship as an important moderating factor for child outcomes. Another part of Shlafer & Poehlmann's (2010) study examined the relationship between caregiver-child relationship perceptions and child behavioral issues in families experiencing incarceration. They found that caregivers who felt more negatively about their relationship with their child were more likely to report that their child exhibited problematic externalizing behaviors six months later, such as aggression, stealing, destruction of property, and running away from home. It is important, then, to understand how the parent's perception of a relationship can either influence problematic behavior or influence the context in which one understands a child's behavior.

It should be noted that the divorce literature does not state that all intact families are more beneficial than separated families. Intact families that exhibit high levels of conflict are highly detrimental to child outcomes (Juby & Farrington, 2001; Peterson & Zill, 1986). Even in studies associated with parental incarceration, high levels of family conflict and disruption have been found to influence child delinquency, above and beyond the effects of parental incarceration (Aaron & Dallaire, 2010; Van Voorhis et al., 1988). It appears that while the absence of a parent can be troubling for children, an intact family which is of poor quality can be just as detrimental. It is also important to consider

that incarceration can lead to disruption and conflict in a family, so the disruption or conflict may be a mediating factor for the effects of parental imprisonment on child behavior. Also, it is important to consider that stressors that may be present in a family prior to incarceration, such as poverty, are likely exacerbated when a parent is incarcerated (see Arditti, Lambert-Schute, & Joest, 2003). Once again, these issues point to a need to better understand the dynamics of child behavioral changes *during* parental incarceration rather than only examining long-term outcomes for the children of incarcerated parents.

These child behavioral issues have been found to differ based on a range of factors. The form and intensity of child outcomes associated with parental absence are influenced by gender of both the parent and child (Peterson & Zill, 1986; Videon, 2005). Other studies have found that age also matters in determining the impact of parent-child relationships on child well-being, with changes in relationship quality impacting child behavior more in younger children than older children (Videon, 2005). Long-term issues associated with parental incarceration also differ based on age (Eddy & Reid, 2002; Myers et al., 1999; Parke & Clarke-Stewart, 2002), gender of the child (Burgess-Proctor, Huebner, & Durso, 2016; Wildeman, 2010), gender of the parent (Burgess-Proctor, Huebner, & Durso, 2016), race of the parent and child (Wakefield & Wildeman, 2011), and whether the parent and child were living together previously (Geller et al., 2012). Further, same-sex parent-child dyads exert a greater influence on child behavioral outcomes, both in the incarceration and divorce literature (Burgess-Proctor, Huebner, & Durso, 2016). Thus, research should examine child behavioral outcomes across a range of demographic and family factors.

In their study about the consequences associated with parental incarceration, Turanovic, Rodriguez, & Pratt (2012) highlighted the ability for parents to contribute to their children's well-being, despite living in separate households. Parenting from a distance, as discussed above, is not always associated with negative outcomes for children. This appears to be particularly true for families which were full of conflict, disruption, or discontinuity prior to an incarceration period (Turanovic, Rodriguez, & Pratt, 2012). It is also possible that incarceration may provide a period of clarity, sobriety, and focus for some parents, which positively impact child outcomes. In the same light, we do not currently know enough about how incarceration of a parent impacts child behavior to make definitive statements about the nature of the relationship. Overall, the complexity of child behavioral changes in response to parental incarceration points to a need for more research into the mechanisms surrounding incarceration that influence child behavior.

Consequences Associated with Maintained Contact with Incarcerated Parents.

While the larger body of research reports mixed findings about the impact of maintained contact between incarcerated parents and their children, more recent research suggests that children can benefit from contact with their incarcerated parents in prison. Shlafer and Poehlmann (2010) reported that children who remained in contact with their incarcerated parent were less likely to have feelings of alienation or anger. Trice and Brewer (2004) found in their study on the adolescent children of incarcerated parents that children who had more frequent contact with their incarcerated mother reported better educational and life adjustment than children with no contact. Further, in their study on the impact of non-contact in-person visits, Dallaire, Zeman, and Thrash (2015) found that

children who experienced non-contact (or barrier) visits had worse internalizing and externalizing behavior scores than children who experienced mail or phone contact with their incarcerated parent.

Similarly, while researchers have previously focused on visitation with children as a negative experience (Arditti, 2003; Arditti & Few, 2008; Nesmith & Ruhland, 2008), researchers, more recently, have suggested the opposite. While children may be sad when the visitation period ends, children are often excited to see their incarcerated parent (Sack & Seidler, 1978). Children who experienced visitation with their incarcerated parents had better emotional adjustment and school performance than children who did not utilize visitation (Arditti, 2012; Trice & Brewster, 2004). Also, children have been found to be less disruptive after visiting a parent in prison (Sack & Seidler, 1978). These findings are in light of the experiences children have while visiting a prison, including confusion, fear, and discomfort (Arditti, 2003).

Overall, the larger body of research in criminal justice lacks information on how visitation influences child outcomes, especially those related to the change in the parent-child relationship. Further, little research exists which examines the types of contact separately or compares them to each other. It is important to examine visitation along with mail and calls, as examining the relative difference in benefits between types of contact can help determine an appropriate cost-benefit analysis which considers that families may not choose certain types of contact regardless of the benefits.

Conclusion. Taken altogether, researchers have begun to understand the link between prison contact, the parent-child relationship, and child behavior. It appears that contact in prison can have a positive impact on the parent-child relationship. Particularly,

visitation appears to have the greatest ability to improve the parent-child relationship for families impacted by incarceration. More positive parent-child relationships appear to lead to lower rates of child behavioral issues, particularly in families of those incarcerated. Lastly, more recent studies which examine the direct link between prison contact and child behavior have found that children are less likely to have negative outcomes when they stay in contact with their imprisoned parent. In-person visitation also appears to have a positive influence on child outcomes, leading to better adjustment and more positive behavior. All in all, it appears that visitation may provide a greater benefit for both the parent-child relationship and child behavioral outcomes than other forms of contact.

CURRENT FOCUS

While we know that incarceration can have an impact on inmates, we also know that incarceration can impact the children of those who are incarcerated, often negatively. Researchers have demonstrated that the children of incarcerated parents exhibit negative outcomes, including behavioral issues, educational problems, issues in their overall well-being, and a higher risk for crime and delinquency (Murray & Farrington, 2005; Murray & Farrington, 2008a; Murray, Farrington, & Sekol, 2012; Myers, Smarsh, Amlund-Hagen, & Kennon, 1999). While research on incarceration tends to focus on child outcomes long after incarceration has concluded, less is known about the proximal reactions children can have to incarceration and the ability that prison contact has to lessen these reactions. Previous research has begun to demonstrate the ability prison contact has to influence parent-child relationships and long-term child outcomes

associated with parental incarceration. At the same time, current research fails to connect different types of prison contact to changes in the parent-child relationship that may, in turn, influence child behavior during the period of incarceration. The current study seeks to bridge the gap in current research through two questions: 1) do different types and different amounts of prison contact (in-person, phone, and mail) correlate with changes in the quality of parent-child relationships and 2) does a change in parent-child relationship quality correlate with a change in child behavior.

METHOD

Setting

Arizona's Prison Population. Arizona provides for an interesting examination of the consequences associated with incarceration. First, as national rates of incarceration begin to level off and decline, Arizona has increased its prison population by 52% over the last ten years (Justice Center, 2007). As of February 2017, the Arizona Department of Corrections housed 42,184 inmates with 90.5% of them male and 9.5% female (Arizona Department of Corrections, 2017). This is an increase of 1.3% over the last two years alone (Arizona Department of Corrections, 2015). Second, given the cost of prison contact, Arizona is among one of eight states with the highest cost for prison phone calls (Iddings, 2006). Third, Arizona has one of the most racially and ethnically diverse prison populations in the country. As of February 2017, 39.6% of the ADC population was Hispanic, 39.0% was Caucasian, 13.9% was African American, 5.4% was Native Americans, and 2.1% was recorded as other (Arizona Department of Corrections, 2017). Comparatively, national prisoner race and ethnicity rates in 2015 reported that 34.3% of

the prison population was White, 34.7% was African American, 19.8% was Hispanic, and 12.2% was recorded as “other” (Carson, 2016). Fourth, Arizona has one of the highest female incarceration rates in the country. In 2017, Arizona housed over 4,000 female inmates; a rate surpassed only by Texas, California, Florida, and Ohio (Arizona Department of Corrections, 2017; Carson, 2016). In comparison, the average number of female inmates housed by correctional institutions nationally in 2015 was 1,867 (Carson, 2016). Arizona also increased the number of female inmates under state custody in 2015 by 0.4% over 2014 (Carson, 2016). This has important implications for the well-being and placement of children, as mothers are typically the caregivers of children (Park & Clarke Stewart, 2002).

Arizona Prison Visitation Project (APVP) Sampling and Methods

The current study used data from the Arizona Prison Visitation Project (APVP). This was a two-phase study which collected information on inmates from both administrative records of the Arizona prison population in 2010-2013 and semi-structured interviews with 231 inmates conducted in 2014 (Tasca, Wright, Turanovic, White, & Rodriguez, 2016). The study was conducted with the goal to evaluate the impact visitation has on recidivism, misconduct, and self-harm and to understand visitation experiences more thoroughly (Tasca et al., 2016). The original researchers’ directives fit within the goals of the current research project and strengthens the conclusions from the current analysis.

The interview instrument utilized for the APVP included both close-ended and open-ended questions. The interviews included sections about children, social support, visitation experiences, stress, and expectations for reentry. The researchers involved with

APVP noted that despite the personal nature of the interview questions, most individuals were happy to share their experiences. Instances where inmates refused to answer questions about their visits and experiences were rare (Tasca et al., 2016).

To reach their sample of inmates, researchers entered either the Arizona Department of Corrections (ADC) Florence State Prison Complex (men) or Perryville Prison Complex (women). Each day, the researchers would randomly select inmates from the visitation log who had received at least one visit in the previous month. Once identified, the inmates were located inside the institution and escorted by a correctional officer to a designated interview location. The research staff would then approach the inmate about participation and obtain consent prior to interviewing. The ADC staff had no influence in selecting prisoners and did not inform prisoners of the project while escorting them to the interview location. There were also no incentives offered to participate in interviews. A total of 277 inmates were approached to participate in the project. Fifteen were ineligible due to working off-yard or in the medical unit. Out of the 262 eligible individuals, 12 men and 19 women declined to participate (Tasca et al., 2016). This resulted in a cooperation rate of 88% (231/262).

From the full sample of 231 inmates, only inmates who are parents of minor children are of interest in the current analysis. Twenty-six percent (n=61) of the inmates in the full sample reported having no children and 17.3% (n=40) reported having no children under the age of 18. This resulted in 43.7% (n=101) of the cases in the full sample being excluded. Further, two individuals were missing data for either the children or minor children variable and were excluded from the sample of the interest. The

effective sample size is 128 inmate parents of minor children (n=73 mother, n=55 fathers).

An important feature of the data is that inmates could provide information on multiple children. The interview instrument asked questions about up to five of an inmate's youngest children. As such, the data were reshaped to examine children nested within-parents. Discussed in more detail in the plan of analysis section, this process involved the “reshape” command in Stata, which gives each grouping (parent) an ID then allows for the identification of variables within that grouping that correspond to entities nested at a lower level. A total of 295 children nested within 128 inmate parents constitute the data analyzed in this study.

Measures

The descriptive statistics for the sample of interest are reported in Table one.

Independent variables. There are 3 groups of independent variables that will be used in the current analysis: type of contact, frequency of contact, and parent-child relationship quality change.

Type of Contact. The first group of independent variables measures whether the child ever contacted their parent using each of the three types of contact (visitation, mail, or phone). These are all dichotomous variables, with a “1” corresponding with the child contacting the parent at least once during the current incarceration using that method of communication. Fifty-five percent of the children were reported to have visited, 65% were reported to have called, and 76% were reported to have utilized mail. Forty-one percent of children used three types of contact, 25% used two types, 17% used one type, and 14% did not have any contact with their incarcerated parent.

Frequency of Contact. The second group of variables measure frequent contact separately for each type of contact (visitation, mail, and phone). Previous research suggests that mail is the most frequent form of prison contact with children, followed by phone, and lastly visitation (Tuerk & Loper, 2006). This was partially confirmed in the current data, with 76 % (n=145) of those children who contacted through mail doing so weekly, 45% (n=98) of those who contacted through phone doing so weekly, and only 31% (n=51) of those who contacted through visitation doing so weekly. As such, frequency of visitation was measured with a “1” corresponding to the child reported to be visiting weekly or monthly and “0” corresponding to less frequent contact (once every 2-6 months, twice a year, yearly, less than once a year). Of those children who had contact with their parent through visitation, 77% (n=125) of them visited their parent weekly or monthly.

Change in Parent-Child Relationship Quality. The third group of independent variables is the change in parent-child relationship quality. The APVP survey instrument measures parent-child relationship quality by asking, “how would you describe your relationship with your child now?” and “how would you describe your relationship with your child in the year prior to your incarceration?”. The variable is ordinal and the responses are coded as: 1=not close at all, 2=somewhat close, and 3=extremely close. In the current analysis, the change in parent-child relationship quality is measured as the difference between the two relationship quality variables: current parent-child relationship quality and parent-child relationship quality in the year prior to incarceration. 63% (n=163) of the children were reported to have no change in relationship quality, 9% (n=24) were reported to have a positive change, and 29% (n=73) were reported to have a

negative change in parent-child relationship. Among those who reported no change in relationship quality, 81% (n=132) reported a high level of relationship quality, 7% (n=12) reported a moderate level of relationship quality, and 12% (n=19) reported a low level of relationship quality.

While the measure of relationship quality can be best described as a measure of closeness, previous research suggests that closeness is an important part of parent-child relationship quality (Paulson, Hill, & Holmbeck, 1991). Considering other factors which are associated with parent-child relationship quality, such as parenting style or discipline, closeness is a neutral construct that is easy for a parent to answer. It does not need either an outside individual to perceive the interactions between the parent and child or for the parent to reflect upon possibly negative aspects of their parenting style. As such, given the information available for the current analysis, it was an appropriate measure of parent-perceived parent-child relationship quality.

Dependent variables. Two dependent variables are used for the current analysis: the change in parent-child relationship quality and the presence of child behavioral problems before and/or during incarceration. The change in relationship quality variable is discussed above. The measure for child behavioral issues was recorded by asking the parent “which of these issues has your child encountered?” The choices were: problems in school, seen/heard violence in the home, exposed to drug/alcohol abuse in the home, and victim of violence/abuse. The choice was to use “problems in school” because it is an objective, third party assessment that likely produces truthful data, whereas problems in the home or victimization requires the inmate to witness this and/or have family members disclose this information to them.

Problems in school is a nominal level variable, where 0=none, 1=before, 2=during, and 3=both, before and during. Seventy-four percent (n=188) were reported to have no problems in school, 7% (n=18) were reported to have school problems prior to incarceration but not during, 10% (n=26) were reported to have school problems during incarceration but not before, and 9% (n=22) were reported to have school problems both before and during incarceration. Forty-one children were missing data for this variable. Seventy-one percent of those who were missing data for this variable were reported to be under the age of 5. It is possible that due to the length of the current prison stay, the child was not old enough to attend school prior to the parent's incarceration, leading to a missing value for this variable.

Control variables. Consistent with prior research, a variety of parent level variables will serve as controls. Parent gender is a dichotomous variable, with 0=male and 1=female. Parent age is a continuous variable, ranging from 20 to 69, with a mean age of 33. Parent race is broken up into four dummy variables: White, Hispanic, African American, and other. "Other" will serve as the omitted category in the analyses. Race is distributed as follows: 40% are Hispanic, 34% are white, 14% are other, and 12% are African American. Current parental marital status is a dichotomous variable, with 1=married and 0=not currently married. The non-married group includes single, widowed, and divorced parents. Pre-incarceration parental employment is coded as a dichotomous variable, with 1=full-time, part-time, or occasional employment and 0=not employed. Parental education is coded as a dichotomous variable, where 1=attainment of a high school diploma or GED and 0=did not complete high school or less. Mental illness was reported by asking the parent "have you ever been told by a mental health

professional that you have a mental illness?” where 1=yes and 0=no. Criminal history was measured using a count of the number of prison terms the parent has served. This is a continuous variable, with a range of 1 to 6. Individuals in their first prison term have a value of 1 on this variable. Drug use in the month prior to the current period of incarceration is also measured, with 1=any type of drug use and 0=none. Lastly, time left in sentence is calculated as a continuous variable. This variable ranges from 0 (will get out in 2014) to 23. Fifty-three percent of the sample had between zero and one years left in their sentence and under 6% of the sample had over eight years left to serve. Individuals with a life sentence (n=5) were recorded as a separate dichotomous variable, with 1=life sentence and 0=other length of sentence.

Three child demographic variables will be included in the present analysis: whether the child is the biological child of the incarcerated parent, child age, and child gender. The study includes a measure that recorded if the child was the biological child of the inmate, with 1=biological child and 0=another relation (step-child, adopted, or other). Regarding the relation between children and their parent, 91% (n=270) of the children in the sample are the biological child of the incarcerated parent and 9% (n=25) are another relation. Child age is also included as a control variable, ranging from under 1 years old to 17 years old. The mean child age was 8.65. Lastly, child gender was also included as a control variable, with 0=male and 1=female. Regarding child gender, 50% (n=147) of the child sample is female.

Consistent with prior research (Geller et al., 2012), a set of family relationship/structure variables will also serve as controls. Three variables are of interest: the status of the current caregiver of the children, a measure of parent involvement prior

to incarceration, and ordering of child in the family (youngest, middle child, oldest, etc.). The status of the caregiver is a dichotomous variable, where 1=other parent or grandparent and 0=another relation. Parental involvement prior to incarceration is measured by asking if the parent lived with a given child in the month prior to their incarceration, with 1=yes and 0=no. Regarding parental involvement, 64% (n=177) of the children were reported to be living with their incarcerated parent in the month prior to the parent's incarceration. Lastly, a measure of child ordering in the family will also serve as a control. When the data set was reshaped to be at the child-level, Stata automatically produced a child ID variable, which indicated the child's ordering in the family. "1" corresponds to the youngest or only child, with each consecutive number corresponding to the next oldest child.

Plan of Analysis

Due to the structure of the APVP interviews, there is the ability to look at relationships both between siblings (within-families) and between inmates (between-families). The ability to examine within-family variation is important, as controlling for parent (and family-level) effects reduces the amount of omitted variable bias that the analyses may contain. To create between- and within-family measures, one must first identify the variables which can vary across children and would matter for the relationship of interest. For this study, these variables were the type and frequency of contact variables, current caregiver of the child, whether the child was the biological child of the inmate, and whether the inmate was living with the child prior to their incarceration. Next, a family mean of these measures across children in each family was created. This is the between-parent measure. Then, for each child, a variable that

calculates that child's deviation from the family level mean can be produced. For example, a "0" on a within-family mean variable would indicate that the child did not deviate from the family mean. Any number above or below 0 would indicate variation on this variable within families.

The current project utilized two separate types of analyses. To examine the first research question, "whether the type and frequency of contact correlate with change in the parent-child relationship" a mixed effects multilevel regression model (xtmixed) will be used (StataCorp, 2015). Four separate models were run to examine both the influence of the choice of a type of contact has on changes in parent-child relationship quality and the influence that frequency of contact has on changes in parent-child relationship quality. The first model measures the impact of between- and within-parent measures of the presence of contact. A significant *between*-parent effect would suggest that parents whose children choose one kind of contact over another are more likely to have better relationships with their children than individuals whose children did not choose that type of contact. A significant *within*-parent effect would suggest that differences among siblings in the choice of prison contact may influence a change in the parent-child relationship. If significant findings are found for the frequency variables, it would mean that either children who have more frequent contact with their parent or parents who have more frequent contact with their children have differing levels of parent-child relationship quality than those who did not have frequent contact.

To answer the second question, "does a change in parent-child relationship quality correlate with a change in child behavior" a series of multi-level mixed effects logistic regressions (xtmelogit) will be estimated (StataCorp, 2015). Due to the structure of the

Table 1.					
<i>Descriptive Statistics</i>					
Variable		Mean	SD	Minimum	Maximum
Parent Demographics					
	Age	33.27	8.15	20	69
	Race				
	White	0.34			
	African American	0.12			
	Hispanic	0.40			
	Other	0.14			
	Gender – female	0.57		0	1
	Marital status	0.25		0	1
	Employed	0.61		0	1
	Socioeconomic status	0.48		0	1
	Education	0.75		0	1
	Mental illness	0.41		0	1
	Drug use	0.69		0	1
	Criminal history	1.69	0.97	1	6
	Years left in sentence	2.81	3.59	0	23
	Life sentence	0.02		0	1
Child Demographics					
	Age of child	8.56	4.45	0	17
	Gender of child	0.50		0	1
	Biological child	0.92		0	1
Family-Demographics					
	Living with parent	0.64		0	1
	Current caregiver	0.77		0	1
	Number of Children	1.95	1.06	1	5
Study Variables					
	Ever visited	0.55		0	1
	Ever called	0.65		0	1
	Ever mailed	0.76		0	1
	Frequently visited	0.77		0	1
	Frequently called	0.76		0	1
	Frequently mailed	0.45		0	1
	Relationship Quality Change	-0.24	0.74	-2	2
	Change in Behavior				
	No school issues	0.74			
	School issues prior to incarceration	0.07			
	School issue during incarceration	0.10			
	School issues during & before	0.09			
Notes: Parent descriptives: n=128. All other descriptives n=295					

data, it was not possible to run a multinomial model. As such, separate regressions were run for each value of the child behavioral change variable (“behavioral problems before incarceration,” “behavioral problems during incarceration,” “behavioral problems at both times”). One set of regressions utilized “no behavioral problems” as the comparison group, while the second set utilized all the other behavioral groups as the comparison. In this way, the analyses could be conducted and compared despite the inability to run a multinomial model. If significant findings are found in these models, it would suggest that the change in parent-child relationship is correlated with changes in child behavior. Coefficients between models were compared to determine if coefficients were significantly different from one another using the “suest” function in Stata then comparing coefficients using the “test” command (StataCorp, 2015).

Missing Data. Due to the large amount of missing data in the current analysis (13.2% n=39), it was decided that multiple imputation was appropriate to allow for the inclusion of these missing cases. Variables which were missing data were: the presence of contact variables (2%, n=6), relationship quality change (12%, n=35), the living with child(ren) prior to incarceration variable (6%, n=15), and years left until release (2%, n=5). There were two sets of variables that were missing that were not imputed on: the frequency of contact variables and the problems in school variable. The variables which measured frequent contact were meant to be only among those who had that type of contact in some frequency, so those who were reported to have never contacted through that method were coded as missing. Second, the current study is unable to examine whether the children who were too young to be in school prior to the parent’s

incarceration experienced changes in problems in school due to the survey questions originally asked.

RESULTS

Q1: Presence/Frequency of Type Contact & Parent-Child Relationship Quality Change

Presence of Type of Contact. The truncated results for analysis one are included in Table two. Estimates for the full model can be found in Appendix A. Standardized coefficients are reported. The reference category for this analysis is those individuals who did not utilize any type of contact (n=42)

The analysis found a significant association between the between-parent measure for the presence of visitation and parent-child relationship quality. Specifically, the coefficient shows that a one-standard deviation increase in a parent's average presence of visitation (across their children) increased levels of relationship quality by 0.344 ($p < 0.000$). This means that parents who had all their children visit had an increase in relationship quality of 0.760 over parents who had none of their children visit (maximum value/standard deviation=2.208. $2.208 * 0.344 = 0.760$)

Also, the analysis found statistically significant findings with respect to the relationship between within-parent relationship quality measure and parent-child relationship quality. A one-standard deviation increase in the presence of visitation across children was associated with an increase in relationship quality of 0.111 ($p < 0.012$). Within-parent relationship quality did not reach 1, but the maximum value was 0.75. Those children who had the maximum value for within-parent relationship quality had an increase in relationship quality of 0.400, over children who only had the value of "0" for

Table 2.				
<i>Results from Analysis One: Type of Contact on Change in Relationship Quality</i>				
DV: Relationship Quality	Between-Parents		Within-Parents	
	β	$SE \beta$	β	$SE \beta$
Ever Visited (standardized) ^a	0.344 ***	0.078	0.111 *	0.044
Ever Called (standardized) ^b	-0.044	0.079	-0.013	0.037
Ever Mailed (standardized) ^c	0.171 **	0.061	-0.026	0.044
<i>Notes:</i> n=295. Prob > F = 0.0001. Estimates for the full model appear in Appendix A. ^a Ever Visited Standard Deviations: between (0.453); within (0.208). ^b Ever Called Standard Deviations: between (0.438); within (0.186). ^c Ever Mailed: between (0.381); within (0.194). + = p<0.10 * = p<0.05 ** = p<0.01 *** = p<0.001				

within-parent relationship quality (maximum value/standard deviation=3.606.

3.606*0.111=0.400).

The analysis also revealed a statically significant association for the between-parent measure of mail contact and relationship quality changes. A one-standard deviation increase in a parent's presence of mail (across their children) was associated with an increase in relationship quality of 0.171 (p<0.006). The within-parents measure of the presence of mail contact was not statistically significant. Neither of the measures for the presence of phone contact was statistically or substantively significant. Also, the F-test suggests that the model is statistically different from a model with no variables (p<0.001).

As discussed below, both measures of visitation and the between-parent measure of mail remained statistically significant in many of the models which measured the relationship between frequent contact (visitation, mail, and phone) and changes in parent-

Table 3.						
<i>Results from Analysis Two: Frequency of Contact on Change in Relationship Quality</i>						
DV: Relationship Quality Changes	Between-Parents			Within-Parents		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Frequent Visits Model ^a						
Frequently Visited ^d	0.294	0.195	0.121	0.274	0.266	0.029
Ever Called ^h	-0.284	0.249	-0.125	-0.287	0.592	-0.050
Ever Mailed ⁱ	0.424 *	0.199	0.163*	-0.360	0.414	-0.073
Frequent Calls Model ^b						
Frequently Called ^e	-0.098	0.187	-0.039	0.289	0.192	0.045
Ever Visited ^g	0.790 ***	0.186	0.359 ***	0.196	0.194	0.041
Ever Mailed ⁱ	0.453 *	0.193	0.173 *	0.598 *	0.288	0.115 *
Frequent Mail Model ^c						
Frequently Mailed ^f	0.118	0.131	0.055	0.037	0.241	0.006
Ever Visited ^g	0.782 ***	0.175	0.354 ***	0.547 **	0.182	0.113 **
Ever Called ^h	-0.189	0.189	-0.083	0.301	0.207	0.056
<i>Notes:</i> ^a n=162. Prob > F = 0.2849. ^b n=190. Prob > F = 0.0012. ^c n=220. Prob > F = 0.0001. ^d Frequent Visit standard deviation: between (0.414); within (0.103). ^e Frequent Calls Standard deviations: between (0.396); within (0.156). ^f Frequent Mail Standard Deviations: between (0.467); within (0.175). ^g Ever Visited Standard Deviations: between (0.453); within (0.208). ^h Ever Called Standard Deviations: between (0.438); within (0.186). ⁱ Ever Mailed Standard Deviations: between (0.381); within (0.194). + = p<0.10 * = p<0.05 ** = p<0.01 *** = p<0.001						

child relationship quality. The between-parent measure of visitation remained significant when controlling for both frequent calls (unstd: 0.790, std: 0.359, p<0.001) and frequent

mail (unstd: 0.782, std: 0.354, $p < 0.001$) regressions. The within-parent measure of visitation remained significant in the frequent mail regression only (unstd: 0.547, std: 0.113, $p < 0.003$). Lastly, the between-parents measure of mail remained significant in both the frequent visit (unstd: 0.424, std: 0.163, $p < 0.033$) and the frequent call (unstd: 0.453, std: 0.173, $p < 0.017$). Lastly, the within-parents measure for mail is significant in the frequent calls regression only (unstd: 0.598, std: 0.115, $p < 0.038$).

Frequency of Types of Contact. The results for analysis two are included in Table three. The results from these models did not find any statistically or substantively significant coefficients on the frequency of contact variables with respect to their association with parent-child relationship quality changes, regardless of the type of contact.

The F-tests show that both the frequent calls and mail regressions were statistically significantly different than zero (calls: 0.012; mail: 0.001). The frequent visitation regression was not statistically significantly different from a model with no variables ($p < 0.2849$), but it still provided useful information for the current analysis.

Q2: Relationship Quality Changes and Changes in the Presence of Behavioral Problems

Children with Behavioral Problems Compared to Base Group of No Problems.

The results for analyses three are included in Table four. In this set of analyses, the comparison group for the regression was children with no behavioral problems. The analysis concluded with a comparison of the coefficients to understand whether the coefficients differed significantly from one another, even if they were not statistically significant themselves.

Table 4.				
<i>Results from Analysis Three: Children with Behavioral Problems Compared to Children with No Behavioral Problems</i>				
IV: Relationship Quality Change	Between-Parents		Within-Parents	
	<i>Odds Ratio</i>	<i>SE</i>	<i>Odds Ratio</i>	<i>SE</i>
Behavioral Problems Only Present Prior to Incarceration ^a	1.111	1.389	1.539	3.193
Behavioral Problems Only Present During Incarceration ^b	0.439+	0.197	9.907	14.978
Behavioral Problems Present at Both Time Points ^c	1.788	1.165	0.395	0.366
<i>Notes:</i> The base group for these regressions are children with no behavioral problems. ^a n=186. Prob > chi2 = 1.000 ^b n=195. Prob > chi2 = 0.4730 ^c n=193. Prob > chi2 = 0.7477. + = p<0.10 * = p<0.05 ** = p<0.01 *** = p<0.001				

The influence of both between- and within-parent changes in relationship quality were associated with significant differences in odds that children would either belong to the “behavioral problems before incarceration” or “behavioral problems at both times” groups, compared to “no behavioral problems.” Increases in between-parent relationship quality did substantively decrease the odds that a parent’s children would belong to the “behavioral problems during incarceration” group by 0.439 to 1 (p<0.065). Within-parent relationship quality was not significantly associated with a change in the odds of a child belonging to a certain behavioral problems group. None of the models were shown to be significantly different that zero, as demonstrated by the chi-squared tests (prior: 1.000; during, 0.4730; both: 0.7477).

Post-Hoc Comparing Coefficients. The coefficients were then compared across models to determine the significance of the difference between the coefficients. This analysis was conducted to compare coefficients across models, similarly as would happen in a multinomial model. The results of the significance test can be found in Appendix B. The results from these significance tests suggest that the coefficients from the between-parent relationship quality change variable in the “behavior problems during” regression were statistically significantly different from the between-parent relationship quality change variable in the “behavioral problems at all times” regression ($p < 0.0265$). Specifically, the coefficient is of greater magnitude and worked in the opposite direction in the “behavior during” model than the “behavior at all times” model. The same coefficient, the between-parent relationship quality variable, was substantively different than the corresponding variable in the “behavior before” model ($p < 0.0998$).

Children with Behavioral Problems Compared to All Other Groups. The results for analysis four are presented in Table five. Like above, both between- and within-parent changes in relationship quality were not associated with significant differences in the odds of belonging to either the “behavioral problems before incarceration” or “behavioral problems at both points” groups, when compared to all other groups of behavioral problems. Again, like above, positive between-parent changes in relationship quality resulted in an associated decrease in the odds of belonging to the “behavioral problems during” group by 0.408 to 1 ($p < 0.036$). The within-parent measure of relationship quality change did not significantly change the odds of belonging to the “behavioral problems during” group. The chi-square tests for the current set of models did not show that any of

Table 5.				
<i>Results from Analysis Four: Children with Behavioral Problems Compared to All Other Groups</i>				
	Between-Parents		Within-Parents	
DV: Relationship Quality Change	<i>Odds Ratio</i>	<i>SE</i>	<i>Odds Ratio</i>	<i>SE</i>
Behavioral Problems Only Present Prior to Incarceration ^a	1.107	1.342	1.185	2.480
Behavioral Problems Only Present During Incarceration ^b	0.408*	0.175	4.109	5.635
Behavioral Problems Present at Both Time Points ^c	1.471	0.957	0.324	0.335
<i>Notes:</i> N=230. The base group for these regressions are all other behavioral problem groups. ^a Prob > chi2 = 1.000. ^b Prob > chi2 = 0.5402. ^c Prob > chi2 = 0.8818. + = p<0.10 * = p<0.05 ** = p<0.01 *** = p<0.001				

the models were significantly different from a model with no variables (prior: 1.000; during, 0.5402; both: 0.8818).

Comparing Coefficients. The coefficients were then compared across models to determine if the coefficients were statistically significantly different from one another. This analysis was conducted to compare coefficients across models, similarly as would happen in a multinomial model. The results are presented in Appendix B. The results suggest that no statistically significant findings were found between coefficients across models. However, like above, the between-parent relationship quality change variable was substantively different in the “behavior problems during” model than the “behavior problems at all times” (p<0.0621). Again, this coefficient was greater in magnitude and

worked in the opposite direction in the “behavior problems during” model than the “behavior problems at all times” model.

Variation in Relationships across Control Variables

Given the large number of models present in this analysis, general findings from all models will be discussed. Tables are not provided.

Parent-level controls.

Association with Changes in Levels of Relationship Quality. Inmate mothers were found to have a statistically significant association with parent-child relationship quality in half of the contact models. Specifically, mothers were associated with a significant increase in relationship quality over fathers (presence of contact: 0.317, $p < 0.027$; frequent calls: 0.360, $p < 0.018$). Also, education (having a high school degree or above) was associated with a decrease in relationship quality across all of the frequent contact models (frequent visits: -0.374, $p < 0.030$; frequent calls: -0.429, $p < 0.007$; frequent mail: -0.327, $p < 0.035$). Lastly, increases in the number of prior prison terms were associated with increases in parent-child relationship quality, particularly in the frequent contact models (frequent calls: 0.225, $p < 0.002$; frequent mail: 0.259, $p < 0.001$). No other parent-level controls were systematically significant across models.

Association with Changes in the Presence of Behavioral Problems. There were some parental control variables which were significant across a few of the models which measured the association between changes in relationship quality and child behavioral changes. A parent who was employed prior to their incarceration decreased the odds their child(ren) would belong to the “behavioral problems during incarceration group”

compared to both children with no behavioral problems (0.184, $p < 0.017$) and all other behavioral groups, substantively (0.310, $p < 0.070$). Also, being on public assistance also substantively decreased the odds that a parents child(ren) would belong to the “behavioral problems during incarceration” group when compared to all other children (0.278, $p < 0.065$), but also resulted in increased odds that their child(ren) would belong to the “behavioral problems at both time points” group, compared to both children with no behavioral problems (9.432, $p < 0.018$) and all other behavioral groups (7.379, $p < 0.040$). No other parent-level variables were significant across models.

Child-level controls.

Association with Changes in Levels of Relationship Quality. No child level controls had an association with changes in the levels of relationship quality across any of the presence or frequency models.

Association with Changes in the Presence of Behavioral Problems. Child-level variables were associated with changes in the presence of behavioral problems. Specifically, increases in child age were significantly associated with an increase in odds of belonging to the “behavioral problems at both times” group, compared to children with no behavior problems (1.547, $p < 0.001$) and all other behavioral groups (1.438, $p < 0.006$). Child gender, specifically a child being female, decreased the odds that a child would belong to the “behavioral problems at both times” group (0.216, $p < 0.025$). No other child-level variables were associated with statistically or substantively significant changes in the odds of belonging to a certain behavioral group over another.

Family-level controls.

Association with Changes in Levels of Relationship Quality. Family-level measures of whether the parent was living with their children prior to incarceration was significant across contact models. Parents who lived with their children prior to incarceration had decreases in relationship quality over the course of the period of incarceration (presence of contact: -0.472, $p < 0.008$; frequent calls: -0.492, $p < 0.014$). No other family-level controls were significant, statistically or substantively, across models.

Association with Changes in the Presence of Behavioral Problems. Family-level controls were not associated with significant differences in the odds of belonging to one behavioral group over another.

DISCUSSION

Incarceration involves sudden and prolonged separation, which can be traumatic times for the children and families of those incarcerated. Unfortunately, this separation cannot be avoided because it is central to what makes incarceration a punishment (Cochran & Mears, 2013). The current study set out to bridge the gap in current research regarding the ways to mitigate the harms associated with incarceration. By focusing on the prison contact context as a source for change, the current analysis focused on whether different types and frequencies of contact, particularly visitation, were associated with changes in the parent-child relationship, and ultimately if the parent-child relationship was the mechanism that can mitigate the negative behavioral responses that children have resulting from the incarceration of a parent. Based on the results, five conclusions can be reached.

First, while previous research suggested that parent-child relationships benefited more from the frequency of contact rather than the presence of a given type of contact, the current analysis found the opposite. The results suggest that type of contact matters for changes in parent-child relationship quality, above and beyond frequency of contact. Specifically, visitation appears to have the greatest effect on improving parent-child relationship quality among all three types of contact. This supports previous research by suggesting that visitation has a robust ability to improve parent-child relationship quality (La Vigne et al., 2005). This finding also contradicts previous research by failing to find an association between the frequency of contact and changes in relationship quality (Arditti and Keith, 1993; La Vigne et al., 2005; Poehlmann 2005b). Overall, this finding expands upon previous research by examining this relationship at multiple levels and while controlling for other types of contact. By examining this relationship concurrently and at multiple levels, this analysis considers that (1) all of a parent's children do not consistently utilize the same types of contact and (2) parents and children may utilize more than one type of contact during the current period of incarceration. The findings from this analysis should encourage future research to take both points into consideration as well.

Second, this study found that mothers were more likely to have increases in relationship quality over the period of their incarceration. Their increases in parent-child relationship quality increase in magnitude when you consider the different types of contact they may utilize. Previous research suggested that mothers were more likely to have decreases in relationship quality due to separation from children (Halperin & Harris, 2004), so the ability that prison visitation may have to greatly increase levels of

relationship quality for mothers is important. Future research should consider examining separate models for mothers and fathers to determine if contact has a larger impact on relationship quality for mothers than for fathers. Further, this analysis also suggested that parents who were living with their children prior to incarceration reported larger decreases in relationship quality than parents who did not live with their children prior to incarceration. In conclusion, if certain groups are associated with different degrees of relationship quality changes, it points to a need for policy and future research to take these factors into account.

Third, this analysis also suggests that increases in parent-child relationship quality are associated with a decrease in the likelihood that children will have behavioral problems during incarceration. As previously mentioned, child behavioral problems that take place during incarceration can be the child's form of reacting to the separation that results from a parent's incarceration. This was largely unexplored in previous research and remains an important facet of the conclusions of this analysis. Further, considering that the goal of this analysis was to understand ways in which policy can impact the collateral consequences of incarceration for children, this finding is particularly important. The conclusions of this analysis build upon the divorce literature which finds more positive child adjustment when parents and children have better relationships (Leon, 2003). It bridges a gap in current correctional research by demonstrating that parent-child relationship quality can help to alleviate child behavioral outcomes that appear during one's incarceration. Future research should continue to focus on these behavioral reactions to understand their meaning for both during incarceration and long-term adjustment.

Fourth, while not examining the direction relationship between prison contact, parent-child relationship quality changes, and child behavior, it is possible that since visitation was associated with increased levels of parent-child relationship quality, it may have the ability to decrease the odds that a child will have behavioral problems during incarceration through changes in parent-child relationship quality. Given the negative consequences associated with incarceration, changes in parent-child relationship quality may be the mechanism through which policy makers can impact the negative child outcomes associated with incarceration. While previous research has been mixed about what impact sustained contact has on child outcomes (Arditti, 2003; Arditti & Few, 2008; Shlafer and Poehlmann, 2010), it may be that by focusing on the parent-child relationship, researchers will be able systematically demonstrate more positive outcomes related to child behavior.

It is important to consider why many of the results were largely non-significant. Seventy-four percent (n=188) of children who were not missing data for child behavioral problems variable were reported to have no behavioral problems at either time point. Fifty-three percent (n=92) of children who were reported to have no change in the parent-child relationship between pre-incarceration and during incarceration (relationship change=0) were reported to have no behavioral problems. Ultimately, the largely non-significant findings resulting from the analysis concerned with the association between parent-child relationship quality changes and child behavioral changes may be a result of the shielding or buffering effect that parent-child relationships play during negative events or stressful periods (Leon, 2003; Murray, 2005).

Limitations and Directions For Future Research

There are several limitations to the analyses presented in this paper and they are presented below.

Generalizability. First, the conclusions of the analysis are limited due to the data's sampling procedure. The sample was collected only from state prisons in Arizona. Therefore, conclusions made to prisons outside of the state would not be warranted. The prison system in Arizona is significantly different than many of the prison systems in the nation. Arizona has a more demographically diverse population, longer prison sentences, and an earned incentives program, which gives more visitation privileges for good behavior. Further, federal offenders may differ significantly from state offenders, so conclusions to federal prisoners aren't recommended. It is not currently known whether the conclusions from this paper will differ across other correctional institutions. Future research should replicate this analysis with a national sample that includes both state and federal prisons.

Second, the sample was randomly chosen from a pool of inmates who had been visited by anyone in the month prior to the commencement of interviews. Since the data set is cross-sectional, there is the possibility that many inmates were not sampled because they received visits from individuals less frequently. Further, those individuals who have never been visited by anyone may differ significantly from inmates who are seldom visited by their children but visited by other individuals. To support this statement, previous research has demonstrated significant differences in demographic factors for those who are never visited in prison (see Cochran, Mears, and Bales, 2014) but have yet to include family or child factors. In summary, the conclusions from this analysis are

limited to inmates in Arizona state prisons who are visited fairly frequently by any individual during their prison sentence. Future research should include a random sample of inmates who are not visited and individuals who are visited less frequently to understand how the findings in this study differ among those who don't experience visitation.

Level of Measurement and Operationalization of Constructs. Both the level of measurement and the operationalization of constructs may have impacted the current analysis. Concerning the level of measurement, all variables in this analysis were perceived and reported, sometimes retrospectively, by the incarcerated parent. This can prove to be problematic considering that some research suggests that different individuals, whether it be parents, caregivers, or children, differ significantly in their perception of parent-child relationship quality (Aquilino, 1999; Mackintosh, Myers, and Kennon, 2006). Further, there is research which demonstrates that recall periods over six months can yield inconsistent results (Cantor and Lynch, 2000). Inmates, and even caretakers and children, may incorrectly report information when an individual has been incarcerated for more than six months. As such, conclusions could be stronger if the dataset contained measures of parent-child relationship quality from children or caretakers in a reasonable time frame. Future research should seek out reports from children, caregivers, and possibly even teachers as well. Also, future research should utilize a shorter recall period, particularly among individuals who have been incarcerated for long periods of time.

The operationalization of the constructs in the current analysis may have impacted the ability to find strong or meaningful links between important variables. First, the

measure of parent-child relationship quality is best described as a measure of parent-perceived closeness of relationship, rather than quality. There were no measures of parenting style, communication patterns, or child punishment. If reports from children or caregivers are used in future research, researchers should seek to measure relationship quality in a more holistic manner (see Gerard, 1994). Second, this dataset utilized an ordinal level variable for measuring the frequency of visitation with children. A more informative measure would be the yearly frequency of visitation by children, measured as a count variable. Ultimately, different ways of operationalizing constructs may provide future researchers with relationships that differ from the ones presented here.

Omitted Variables. As with secondary data, there are variables that were not measured during data collection. First, there is no measure for length of the current prison sentence or type of offense committed. Length of current sentence, rather than time left in sentence, would provide the ability to see how the length of the prison sentences may have impacted the retrospective reporting of relationship quality and behavioral issues (Cantor & Lynch, 2000). Also, it is possible that individuals who have been incarcerated for longer periods of time may have different magnitudes of changes in relationship quality than individuals who are incarcerated for shorter periods of time. As such, future research should take advantage of institutional level data (i.e., prisoner records) to build upon the findings presented in this study.

Second, a measure for quality of the contact with one's children is important for understanding how contact impacts family relationships and child behavior. Research has suggested that the quality of the content of contact experiences matters for both relationships and child behavioral reactions (Poehlmann, Dallaire, Loper, & Shear, 2010).

Future research should examine the quality of contact between parents and their children in the context of the current study to understand whether quality contact influences relationship quality and possibly child behavior.

Lastly, it may be that due to the measure of child behavioral issues, the current study missed important links between parent-child relationship quality and child behavior. The current analysis only had one child behavioral issues variable: problems in school. As mentioned in Liu (2004), externalizing and internalizing behaviors can be present at school. As such, both types of behavioral responses that could be associated with incarceration may be subsumed under the label of problems in school. Liu (2004) also points to the fact that these problems typically coexist in children with behavior problems, but we do not know now if that is true for children with an incarcerated parent. It may be possible that the inmate is not aware of the child's behavioral problems due to their period of incarceration or their presence away from the home. Future research should focus on the inclusion of more behavioral measures as well as reports of behavior from multiple individuals. Along the same lines, it may be that like previous research, the current analysis was not able to tease out the influence of other confounding factors related to parent-child relationship quality changes and child behavioral outcomes. Future research should examine a wider range of variables, reports, and study these families longitudinally to understand the broader context in which these constructs change within.

Policy Implications

The current analysis presents findings which have implications for policy in corrections, visitation, and inmate programming. Given the strong association between visitation and increases in parent-child relationship quality, designing programs which

help facilitate visitation could be beneficial for both parents and their children. Visitation helps parents maintain social ties and sources of social support, which ultimately are important for reentry and reducing recidivism for inmates, post-release (La Vigne, Naser, Brooks, & Castro, 2005). As this study demonstrated, the benefits also extend to the children in terms of an association with improved parent-child relationships and an impact on child behavioral changes during incarceration.

Research has demonstrated positive outcomes among programs which help to facilitate regular, quality contact between an incarcerated parent and their child (Snyder, Carlo, & Coats Mullins, 2002). These programs could include help with transportation to the facility or the ability for a family to be reimbursed for travel to visit an inmate once a year. A study by Hoffman, Byrd, & Kightlinger (2010) found that in their survey of 387 wardens of correctional institutions across the country, 16% of male facilities, 13% of female facilities, and 15% of co-gender facilities provided transportation to prison from local public transit facilities. Further, they also found that 18% of male facilities and 29% of female facilities offered subsidized transportation for visitation family members. Lastly, only 0-33% of transportation assistance was funded directly by the DOC, while most funding came from faith groups or a combination of sources (Hoffman, Byrd, and Kightlinger, 2010).

If children are unable to be brought to the institution to visit, it is important to include inmates in programs which facilitate communication via mail and help inmates communicate with their children through writing. Further, providing inmates with a set number of stamps a week would likely provide large benefits for individuals with poor relationships with their children or those who are seeking to improve relationships with

their children. This is particularly true for inmates who fall into the categories identified above that are associated with decreases in parent-child relationship quality over the course of the period of incarceration (e.g., parents who lived with their children). There has not been an evaluation of such a program in the current body of research.

Along these lines, parents who are more likely to have decreases in parent-child relationship quality over the course of their incarceration should be offered programming which not only helps to facilitate contact between a parent and their children but encourages quality, meaningful contact between them. This could take one of two forms. First, this could involve information on how to effectively communicate with children while separated for long periods of time. Second, this could involve efforts to improve visitation rooms to make them more child friendly, sensitive to the needs of children, and create an environment where parents can feel more comfortable communicating with their children. Research suggest that women's facilities, compared to male or co-gender facilities, are more likely to offer child suitable visitation rooms with room to play and materials for children (Hoffman, Byrd, and Kightlinger, 2010). It is possible that through these two forms of programming, the negative impact of incarceration may be mitigated by improving the likelihood, quality, and content of these interactions in one context.

It is important to consider that while correctional policy doesn't seem to be focused on children or families (Hoffman, Byrd, and Kightlinger, 2010), the directors and wardens of correctional institutions do appear to have the children of incarcerated parents in mind when discussing programming. The directors and wardens of women's prisons appear to be especially concerned with the children of prisoners. Women's institutions have higher rates of programming tied to improving both parent-child relationships and

breaking intergenerational cycles of crime. Male and co-gender facilities had a lower frequency of programming for children, compared to female facilities. This disinterest is likely due to the central role mothers play in raising children versus the role that fathers play, and the likelihood that co-gender facilities exist in areas where women's prisons don't exist. In discussing Arizona's prison system, the large number of parenting programs, coupled with the introduction of their child friendly area in the visitation room, show important strides towards consideration and targeting of the unintended consequences of incarceration.

As discussed above, it may be possible that by directing programming that increases levels of parent-child relationship quality, institutional stakeholders can also help to lower the likelihood that children will have behavioral problems during incarceration. While the current study did not examine the direct link between contact and changes in behavioral problems through changes in parent child relationship quality, policy and programming may be able to tap into the link between parent-child relationship quality and child behavioral changes with programs meant to increase parent-child relationship quality (see Snyder, Carlo, & Coats Mullins, 2002 for an example of such a program). Also, research has found that programs can improve both parent-child relationships and child behavior simultaneously. Snyder-Joy and Carlo (1998) found that children who participate in parenting programs during incarceration may experience a decrease in behavioral problems in school. Here, we can see a program that both improves and facilitates contact while seeking to improve parent-child relationship quality that ultimately results in improvement in child behavior.

CONCLUSION

The results suggest that visitation and mail contact are important contexts that are related to improved parent-child relationship quality. Further, increases in parent-child relationship quality decreased the likelihood that children would have behavioral problems during the period of incarceration. These findings both support previous research and expand upon the current body of research which suggests that children do not always experience visitation and contact as a negative experience (Turanovic, Rodriguez, & Pratt, 2012). It appears that visitation and contact, rather, have important benefits for the parent-child relationship. Further, increases in parent-child relationship quality were associated with a decrease in behavioral issues that only occurred during the period of incarceration.

Ultimately, the relatively low cost of encouraging or facilitating contact between parents and their children provides benefits. Parents are more likely to have stronger social ties and support once they leave the prison, which provides decreases in recidivism and facilitates reentry (La Vigne, Naser, Brooks, & Castro, 2005). Children of incarcerated parents are at a higher risk for negative outcomes that surpass the risk level of the general population (Murray & Farrington, 2008a; Myers, Smarsh, Amlund-Hagan, & Kennon, 1999). As such, it is important that institutional stakeholders take steps during the period of incarceration to mitigate harms and improve outcomes long before lasting effects appear.

Correctional policy makers should focus on programming that both encourages and facilitates contact between parents and their children while making the process and experience more positive (Hoffman, Byrd, and Kightlinger, 2010). Simple efforts such as

subsidizing transportation costs to the prison or encouraging participation in parenting classes or classes that help to facilitate contact between parents and children are ways in which we can make an impact on those affected by incarceration in an indirect and unintentional way (see Snyder-Joy & Carlo, 1998; Snyder, Carlo, & Coats Mullins, 2002). The families of those incarcerated no longer need to be the “hidden victims of imprisonment” (Cunningham & Baker, 2003). Policy makers should focus on shifting them from hidden to seen, acknowledged, and the focus of correctional programming for both themselves and the inmates that they support.

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APPENDIX A

FULL RESULTS FROM ANALYSIS ONE

DV: Relationship Quality	Between-Parents		Within-Parents	
	β	$SE \beta$	β	$SE \beta$
Ever visited (Standardized) ^a	0.344 ***	0.078	0.111 *	0.044
Ever called (Standardized) ^b	-0.044	0.079	-0.013	0.037
Ever mailed (Standardized) ^c	0.171 **	0.061	-0.026	0.044
Caregiver 1=other parent or grandparent (0=anyone else)	-0.005	0.175	-0.074	0.196
Living together	-0.472 **	0.177	-0.349 *	0.143
Biological child	-0.060	0.273	-0.060	0.202
Race: White	0.072	0.201		
Race: Hispanic	0.326	0.201		
Race: African American	0.004	0.248		
Employed (Pre-Inc.)	-0.054	0.135		
Education	-0.209	0.135		
Time left in sentence	-0.029	0.018		
Public assistance	-0.077	0.126		
Marital status	-0.080	0.142		
Parent age	-0.008	0.008		
Parent gender (1=female)	0.317*	0.143		
Drug use (Pre-Inc)	-0.070	0.144		
Prior prison terms	0.104	0.068		
Age of child			0.011	0.011
Gender of child 1=female			0.016	0.071
Ordering of child in family			0.018	0.036
<p>Notes: n=295. Prob > F = 0.0001.</p> <p>^a Ever Visited Standard Deviations: between (0.453); within (0.208). ^b Ever Called Standard Deviations: between (0.438); within (0.186). ^c Ever Mailed: between (0.381); within (0.194).</p> <p>+ = p<0.10 * = p<0.05 ** = p<0.01 *** = p<0.001</p>				

APPENDIX B

POST HOC TESTING SIGNIFICANCE ACROSS MODELS

Comparison to Those With No Behavior Problems.

DV: Between-Parent Relationship Quality	Behavior Before	Behavior During	Behavior at Both
Behavior Before	-	2.71+	0.52
Behavior During	-	-	4.92*
The base group for these regressions are children with no behavioral problems. n=230 Chi-square results are listed in table, with 1 degree of freedom. + = $p < 0.10$ * = $p < 0.05$ ** = $p < 0.01$ *** = $p < 0.001$			

DV: Within-Parent Relationship Quality	Behavior Before	Behavior During	Behavior at Both
Behavior Before	-	0.85	1.00
Behavior During	-	-	2.81+
The base group for these regressions are children with no behavioral problems. n=230 Chi-square results are listed in table, with 1 degree of freedom. + = $p < 0.10$ * = $p < 0.05$ ** = $p < 0.01$ *** = $p < 0.001$			

Comparison to All Groups.

DV: Between-Parent Relationship Quality	Behavior Before	Behavior During	Behavior at Both
Behavior Before	-	2.59	0.19
Behavior During	-	-	3.48+
The base group for these regressions are all other behavioral groups. n=230 Chi-square results are listed in table, with 1 degree of freedom. + = $p < 0.10$ * = $p < 0.05$ ** = $p < 0.01$ *** = $p < 0.001$			

DV: Within-Parent Relationship Quality	Behavior Before	Behavior During	Behavior at Both
Behavior Before	-	0.39	0.63
Behavior During	-	-	1.95
The base group for these regressions are all other behavioral groups. n=230 Chi-square results are listed in table, with 1 degree of freedom. + = $p < 0.10$ * = $p < 0.05$ ** = $p < 0.01$ *** = $p < 0.001$			